

CLAIMS

- [1] A method and apparatus for priority based data processing, comprising:
- 5 a data storage apparatus that stores data comprised of a plurality of components;
- an important component selection apparatus that selects a component having high importance; and
- an data processing apparatus that performs data processing
- 10 programmed for each component, wherein
- the important component selection apparatus has a function of storing a plurality of sets of importance of a given component and a component identifier that indicates which component the importance represents, in descending order of importance, and a function of
- 15 outputting a component identifier of a component having highest importance on a priority basis,
- the data processing apparatus has a function of performing data processing on a component related to the component having high importance, which is indicated by the important component selection
- 20 apparatus, and then updating data on the component stored in the data storage apparatus according to a result of the data processing and re-evaluating the importance of a changed component and sending out an updated value of the changed component to the important component selection apparatus, and
- 25 the apparatuses can perform these functions parallelly and

simultaneously.

[2] The method and apparatus for priority based data processing thereof according to claim 1, comprising

5 a plurality of registers;
comparators attached to the respective registers; and
a control circuit that controls data input/output to/from the registers and a data shift operation between the registers,
data in each register includes importance data and a component
10 identifier,

the important component selection apparatus has a function of arranging and holding the data in order of magnitude of importance and outputting most important data and moving, when the most important data has been read, the importance of rest of the data up
15 one position,

each comparator compares magnitudes of an importance data portion of a corresponding register and an importance data portion of input data and compares matching between a component identifier of data in the corresponding register and a component identifier of the
20 input data for matching, and

based on results of the comparisons, when a same component identifier as that of the input data is not present in any register, an input data control circuit additionally inserts the input data in a position between data having higher importance than the input data
25 and data having lower importance than the input data, and when there

is a register holding the same component identifier as the input data and the importance data in that register is lower than the importance of the input data, the input data control circuit deletes data in the register and inserts the input data in a position between the data
5 having higher importance than the input data and the data having lower importance than the input data.

[3] The method and apparatus for priority based data processing thereof, wherein an arithmetic circuit that performs an arithmetic
10 process on data in the importance data portions of the respective registers is added to the important component selection apparatus of claim 2.

[4] The method and apparatus for priority based data processing
15 thereof, wherein

the data storage apparatus of claim 1 holds a plurality of candidate value data for each of a plurality of component data,

the data processing apparatus regards a statistic of a plurality of candidate values of a component as a representative value of the
20 component and performs data processing specified by a program, on each component data, calculates a new updated value for each component data, and then replaces a candidate value that differs most greatly from the updated value with the updated value, and

the important component selection apparatus regards the
25 magnitude of variation in a plurality of candidate values for a

component data as an importance of that component data and selects an important component based on an order of magnitude of variation in candidate values.